



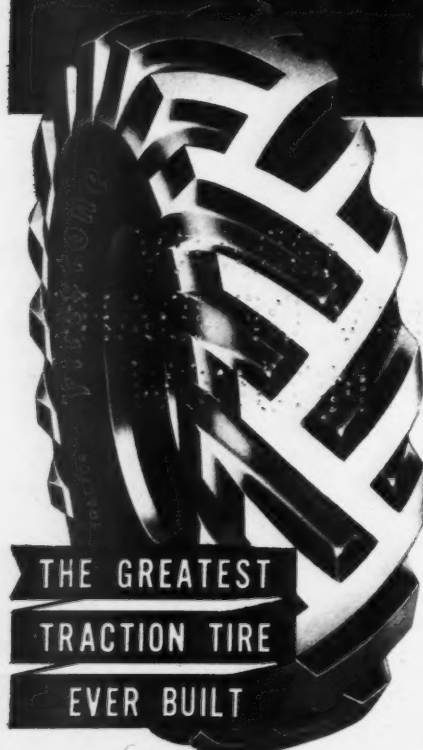
AMERICAN FRUIT GROWER

July

1937

FIRESTONE GROUND GRIP TIRES

SAVE YOU MONEY



**THE GREATEST
TRACTION TIRE
EVER BUILT**

YOU SAVE in fuel costs. Tests made by leading agricultural colleges prove that Firestone Ground Grip Tires save up to 25% in fuel.

YOU SAVE in time. Ground Grip Tires enable you to drive your tractor faster with greater comfort and efficiency. You save up to 25% in time.

YOU SAVE by reducing breakage and repairs. Ground Grip Tires cushion tractors and farm implements reducing jolts and jars.

YOU SAVE by doing better work. Ground Grip Tires will not pack the soil and do not injure plants.

YOU SAVE with Firestone Patented Construction Features. Gum-Dipping saturates and coats every cotton fiber in every cord in every ply, counteracting internal friction and heat and providing the extra strength necessary to stand the tremendous stresses and strains of traction pulling. The patented construction of

Two Extra Layers of Gum-Dipped Cords under the Tread binds the tread and cord body into one inseparable unit. The patented tread design with deep cut, rugged bars is self-cleaning, providing greatest traction and drawbar pull.

YOU SAVE with the Firestone Cut-Down and Change-Over Wheel Program. By this plan your present implement wheels can be cut down and flat steel rims of uniform diameter welded to the ends of the spokes. Then by use of Firestone demountable rims the tires can be taken off one machine and put on another. You need only a few sets of tires to put all your farm implements on Ground Grip Tires.

YOU SAVE in buying NOW as tire prices are advancing. The price of crude rubber has gone up 110% and cotton more than 25% during the past two years. Call on your nearest Firestone Implement Dealer — Tire Dealer or Auto Supply and Service Store today.

DON'T RISK YOUR LIFE ON THIN WORN TIRES

Protect yourself and your family from the danger of driving on thin worn tires which may cause a serious accident.

DO YOU KNOW

THAT last year highway accidents cost the lives of more than 38,000 men, women and children?

THAT a million more were injured?

THAT more than 40,000 of these deaths and injuries were caused directly by punctures, blowouts and skidding due to unsafe tires?



Section of smooth worn tire which is more susceptible to punctures, blowouts and skidding.

Section of new Firestone Tire. Note protection against skidding, punctures and blowouts.

THE GREATEST TIRE EVER MADE TO SELL AT THESE LOW PRICES

Come in, examine a cross-section cut from a Firestone Standard Tire. See for yourself how much extra value you get in the deep-cut, non-skid tread. You will agree that never before have you seen so much quality, so much built-in mileage and so much safety at so little cost. The Firestone Standard Tire is made safer from blowouts with the Firestone patented process of Gum-Dipping. The wider, flatter tread with more rubber on the road gives longer mileage and greater protection against skidding. Firestone can give you all these extra values because Firestone Standard Tires are built in such large quantities that great savings are made in production.

Don't drive another day on thin worn tires that are dangerous and may cause an accident. Join the Firestone Save A Life Campaign today by equipping your car with Firestone Standard Tires — First Grade Quality at Low Cost.

Firestone STANDARD	
4.40-21..	\$8.15
4.50-21..	9.05
4.75-19..	9.55
5.00-19..	10.30
5.25-18..	11.40
5.50-17..	12.50
6.25-16..	15.05

Others Proportionately Low

**THE FARMER'S CHOICE
FOR RURAL HIGHWAYS**

JOIN THE FIRESTONE

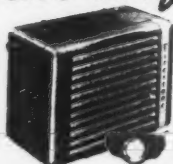
Save a life CAMPAIGN TODAY!

Listen to the Voice of Firestone featuring Margaret Speaks, Monday evenings over Nationwide N. B. C. Red Network

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AUTO SUPPLIES
GIVE YOU
GREATEST VALUE
FOR YOUR MONEY**

SEAT COVERS

Available in cool fiber and attractive new materials.



AUTO RADIOS

Firestone Stewart-Warner with 6 All-Metal tubes, Sound Diffusion.

BATTERIES

Power and dependability. Longer life.



GARDEN HOSE

Durable, weather resisting, all-rubber hose. Will not kink.

BRAKE LINING

Special construction eliminates fading and chatter. Gives longer service. For cars, trucks, buses.



Firestone

Nationwide News

One of the largest co-operative cold storages in Michigan will soon be in operation at Millburg. This storage is a project of the Millburg Growers Exchange and will have a capacity of 40,000 bushels. Manager Max Smith of the exchange says that work will be completed on the building by August 1. The storage adjoins the present packing plant and will facilitate marketing of fruit handled by the exchange.

From August 10 to 13, inclusive, Chicago will play host to the 42nd annual convention of the International Apple Association. One of the principal subjects to be discussed at the convention sessions will be that of apple advertising and promotion. All interested growers are urged to attend this meeting.

During the strawberry season just past, members of the Montgomery County (Tenn.) Strawberry Growers' Association maintained an office in the freight terminal at Clarksville, Tenn. Using the office as a concentration point, Manager William Miller cared for the local trade and shipped consignments on the day the berries were received. Miller states this method of caring for a crop results in greater marketing efficiency and allows for constant knowledge of the harvest situation.

Out-of-State shipments of California's spring crop of Beauty plums were marketed under regulation this year. The regulations allowed growers and handlers to ship grades and sizes of plums to more nearly meet market demands.

Growers in the vicinity of Frankston, Tex., have recently organized the Frankston Co-operative Fruit Growers Association. Principal fruit to be handled by this group is peaches.

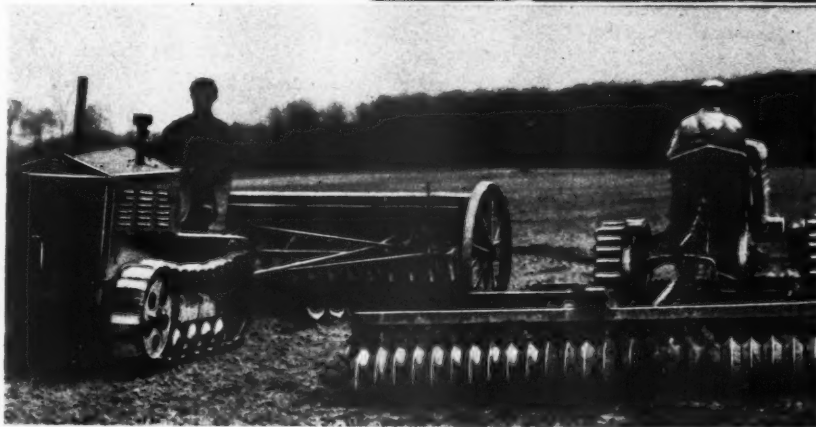
Co-operative groups of growers are usually most active on the wholesale markets of the territories which they serve. An exception to this rule is found in the marketing practices of the Western Montana Fruit and Vegetable Growers, Inc., who maintain a stand in the farmers' retail market at Missoula, Mont.

Minnesota fruit growers were issued a challenge recently in the statement of Elmer C. Haralson, manager of the Excelsior Fruit Growers Association, who said, "The all-important problem before the fruit grower in Minnesota today is marketing. The system of marketing fruit has shown

"We Saved 72 Gallons Of Fuel In Working One 12-Acre Field"

says Miss Louisa I. Martin,
manager of The Old Brick
Farm at Orwell, Ohio.

"WORKING TIME WAS CUT 56%
HOURS when we used a high compression tractor and regular-grade gasoline," adds Miss Martin. She is shown here in Napoleon's chair from the Throne Room at Versailles. This historic antique is in The Old Brick Farm Museum.



The streamlined Cletrac "E" to the right is pulling an 8-foot double tandem disk and a 1500-pound cultipacker. The one to the left pulls a 12-foot drill. Both Cletracs have oil changed every hundred hours, none added between changes.

THE Old Brick Farm at Orwell, Ohio, has been owned by one family for 105 years. Its 500 acres have been worked with oxen, mules, horses, low compression tractors and high compression tractors. It has been managed since 1918 by Miss Martin, who judges the worth of high compression tractors and regular grade gasoline from her records.

She says: "Here's our experience on a 12-acre plot in two different years. The old low compression tractor, pulling two plows, took 81 3/4 hours to plow, fit and drill. It burned 142 gallons of low grade fuel. The oats were not in until June 6. The high compression Cletrac, pulling three plows, took 23 hours to plow, fit and drill. It burned 70 gallons of regular-grade gasoline. The oats were in by May 11. In other words, the high compression tractor took only 28%

of the former time, 6 gallons of fuel an acre less, and planting was finished almost a month earlier."

More power for your tractor

You can get more power from your tractor by using regular grade gasoline and setting the manifold to the "cold" position. You can increase this power greatly by high compression your tractor, using high compression ("altitude") pistons or high compression heads that most tractor companies make for installation in present equipment. When you buy a new tractor, specify a high compression engine and use regular grade gasoline. Then you will get the added power and fuel economy of high compression. Ethyl Gasoline Corporation, Chrysler Building, New York, N. Y., manufacturers of anti-knock fluids for regular and premium gasolines.

It pays to buy **GOOD GASOLINE**
FOR CARS, TRUCKS AND TRACTORS

"Black Leaf 40"

**KILLS
APHIS
RED - BUG
CODLING MOTH
LEAF - HOPPER**

Save Extra Sprayings... Use
"BLACK LEAF 40"
*With Other Standard Spraying
 Materials*

IT WILL PAY TO INCLUDE "BLACK LEAF 40" with your standard spraying materials this year. "Lead arsenate" or "summer oil" fortified with "Black Leaf 40" makes a more effective codling moth spray. Lead arsenate kills the larvae after they eat, summer oil kills the eggs. "Black Leaf 40" kills mature eggs and larvae and also adult moths.

"BLACK LEAF 40" KILLS BY CONTACT AND BY FUMES: "Black Leaf 40" used alone or with other sprays kills aphid, red-bug, leaf-hoppers and other insects which damage foliage and gnarl or dwarf fruit.

"BLACK LEAF 40" IS SAFE TO USE: Effective at high dilutions. "Black Leaf 40" is a highly concentrated poison of vegetable origin—it is not caustic—does not "burn" men, horses, foliage or crops. Being volatile, it "fumes off" (evaporates) from fruit and foliage. Economical, easy to mix and apply. "Black Leaf 40" is sold by spray material dealers everywhere.

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Come to **CEDAR POINT**
 ON LAKE ERIE

JUNE 12th TO SEPTEMBER 6th
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Finest Bathing Beach in the World...
 Largest Hotels on the Great Lakes...
 1000 outside rooms at reasonable rates
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 ing...and all recreational attractions
 ...Appetizing Meals... Ample Garages
 ...Free Parking Space... Ideal for a
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SEND FOR FOLDER
 Reached by rail, interurban or busses to Sandusky;
 or by auto, Ohio Route 2, U. S. 6, or by steamer.
CEDAR POINT-ON-LAKE ERIE
 OWNED AND OPERATED BY
 The G. A. Boeckling Co., Sandusky, O.



little advancement since the pioneer days of the industry." He further urged that growers market through some organization so the supply on any market can be controlled.

Daily auctions during the marketing season are planned by growers in Wayne County, New York. The growers expect to follow selling methods used in New Jersey auctions which have been highly successful during the past few years in providing steady supplies concentrated at one point for ready sale to buyers over the auction block.

Purdue University's extension entomologist, G. E. Lehker, enlisted the aid of four Indiana growers this season in obtaining data on codling moth emergence. The orchards under observation were located in scattered parts of the State, each grower operating several bait traps and reporting appearances of the adult moths.

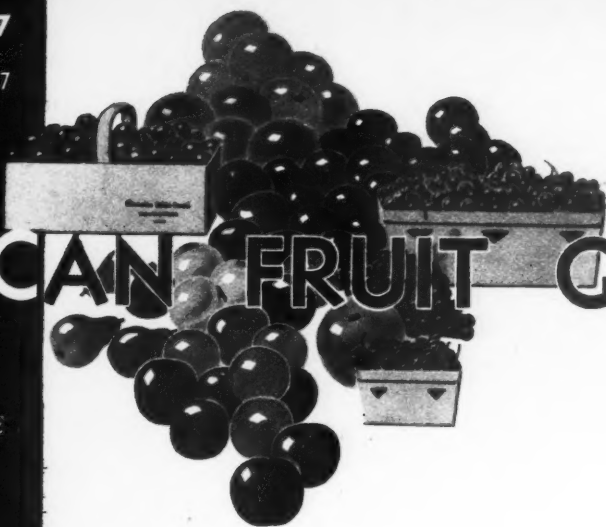
Peach stones were among the seeds ordered from England by the governor of the Massachusetts Bay Colony in 1629.

Good Bermuda grass sod gives as effective protection to terrace outlet channels as masonry. The sod has proved to be more practical and economical, according to North Carolina tests. Construction of terrace outlet channels of lasting effect is important for erosion control.

Novelty is injected in the meetings held by fruit growers in the vicinity of Spring Valley, N. Y. Instead of holding meetings during the day in the busy season, these growers have instituted a series of twilight meetings. Attendance at these meetings has been excellent and growers report that they obtain worth while information from the exchange of ideas on spraying problems, principal discussion topic at the meetings.

Lane County, Oregon, strawberry growers have banded together to provide improved planting stock and to eliminate low-yielding, diseased plants. All growers in the county are eligible to take part in the certification of plantings. There is a small fee for certifying plantings which is charged on the acre basis.

Scientists of the U. S. D. A. have found that moss and lichens that grow on the bark of fruit and nut trees in the southern states can be easily controlled by spraying. Trees sprayed regularly with lime-sulphur or Bordeaux mixture will need no further treatment, but those trees not sprayed will be cleansed of the moss and lichens by application of one of the above spray materials.



AMERICAN FRUIT GROWER

The
NATIONAL FRUIT MAGAZINE

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AMERICAN FRUIT GROWER

Published Monthly by

AMERICAN FRUIT GROWER PUBLISHING CO.
1370 Ontario St., Cleveland, O.

E. G. K. MEISTER

Publisher

IRVING HALLIDAY DR. J. H. GOURLEY
Managing Editor Associate Editor

A. A. KRAUSE WILLIAM H. ZIFF
Associate Editor Field Editor

T. J. TALBERT MARY LEE ADAMS
Contributing Editor Home Economics Editor

ROGER FISON, EASTERN MGR.
Room 1212, 30 Rockefeller Plaza
Phone—Circle 7-1853

ADVERTISING REPRESENTATIVES: J. C. HARRIS CO., 123 W. Madison St., Chicago, Phone 1-1000; 415 Lexington Ave., New York City, Phone 1-1000

SUBSCRIPTION RATES

Except Cleveland, 3 years \$1.00; 1 yr. 50c
and mail foreign (except Canada) \$1.00 per year.
Canada, 50c per year.
Second-class matter at Post Office at Cleveland, Ohio, under the Act of March 3, 1879. Additional mailing at Mount Morris, Illinois.

WHITHER BOUND

THE fruit industry of the United States is not static, its complexion is constantly changing. Old areas give place to new, old varieties give place to better ones, and new economic situations force other methods and avenues for the disposal of the crops. Every industry has its evolution, its ups and its downs. Orchardling started out in swaddling clothes, passed through the swank of a rich man's fancy, then down to earth to a sound development of a great American industry.

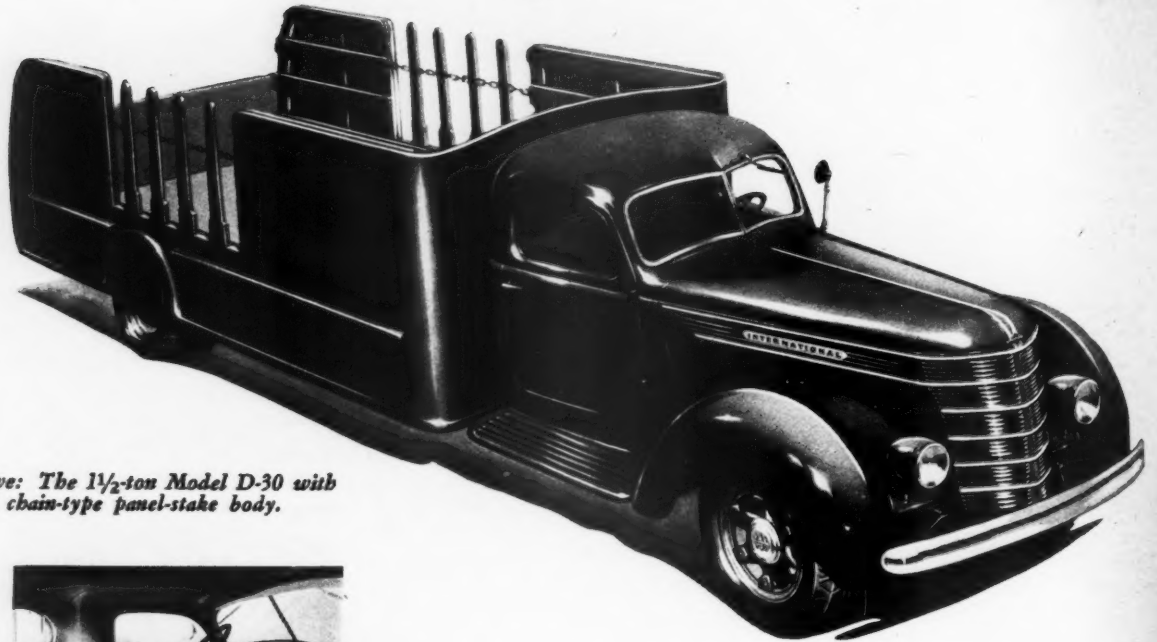
The coming of refrigeration, spraying, and power machinery all have left their imprint upon orcharding and now the greatest problem facing it is a better handling, packaging, and marketing of the finished product. No one else can be expected to work out our salvation for us; it is up to the orchardist, but more particularly to an intelligent and resolute banding together of the orchardists as a whole. Where are we bound, and do we have the fortitude to go ahead? What remains to be done?

Among these aspirations may be mentioned a closer alliance between the producer and merchant on the one hand and the retailer and housewife on the other. A better knowledge of the use of varieties is essential to greater distribution and consumption. In this the National Apple Institute and other organizations are leading the way. Let their good work be multiplied many fold.

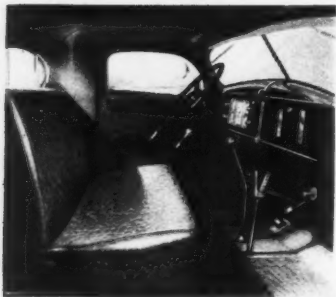
A sympathetic union of interests among the deciduous fruit growers is needed to the end that all are helped and none is discriminated against. Here we may take a leaf from the enviable record of the International Apple Association and its versatile secretary.

The support of every research agency and the stimulation of others is necessary in the hope that the facts may be secured regarding such vital matters as the spray residue problem, and national and local advertising. This can be done only through generous financial support from the growers themselves, and in the end we will stand on our own feet.

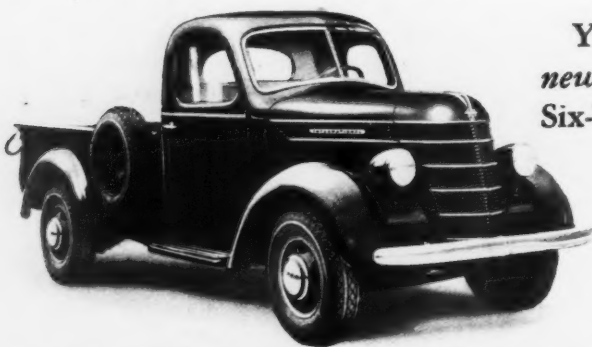
The NEW INTERNATIONALS



Above: The 1 1/2-ton Model D-30 with special chain-type panel-stake body.



Interior of the roomy, well-appointed de luxe cabs in the new Internationals. Full-size door windows, sloping V-type windshield, and large rear window assure clear vision for safe driving. Deeply upholstered, adjustable seat and back cushions add to driver comfort.



Beautiful, streamlined International Pick-Up Trucks are also available in Half-Ton to One-Ton capacities. Pick-up bodies in three sizes: 76, 88, and 102 inches.

Style has the spotlight these days in the new International Trucks. Streamlined style may be *everything* the public sees when your trucks are on the road, but in your own mind the many improvements built into these trucks are even more important. Improvements *designed* into them from the drawing board up, from the laboratory out. Qualities that will show on the job during the truck's long life, *and be even more evident on the books of your business.*

You can accept these beautiful trucks—a *complete new line*, ranging in sizes from Half-Ton to powerful Six-Wheelers—either on faith, based on International's 30-year success with trucks, or on a careful study of their modern engineering. Or *both*. Examine these trucks at any International branch or dealer showroom.

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606 S. Michigan Ave.

Chicago, Illinois

INTERNATIONAL TRUCKS

MULCH SYSTEM OF ORCHARDING



By J. H. GOURLEY
Ohio Experiment Station

IF ONE travels through rolling or hilly country and observes cultivated orchards in such sections, he is impressed with the serious loss of top soil by erosion. Sheet erosion has taken its toll, and not infrequently gulleys have been cut down the hillside exposing roots of trees and making orchard operations difficult.

How such a program could have developed and been sanctioned by horticulturists for so long is difficult to understand. Nor is it confined only to the older days, for each year we see sodded hill lands plowed up to put in a "soil-building program" with the same dire results. The striking illustrations in a recent issue of AMERICAN FRUIT GROWER

tells the story more graphically than words.

On the other hand, we just traveled through that delightful fruit region lying between Niagara Falls, Canada, and Toronto. There the land is quite or nearly level and no evidences of erosion were to be seen, and the orchards looked prime. The same may be said of some of the fruit regions along Lake Ontario in New York State and elsewhere. But

even in such localities there are some unfavorable consequences to long-continued, intensive cultivation regardless of the use of cover crops.

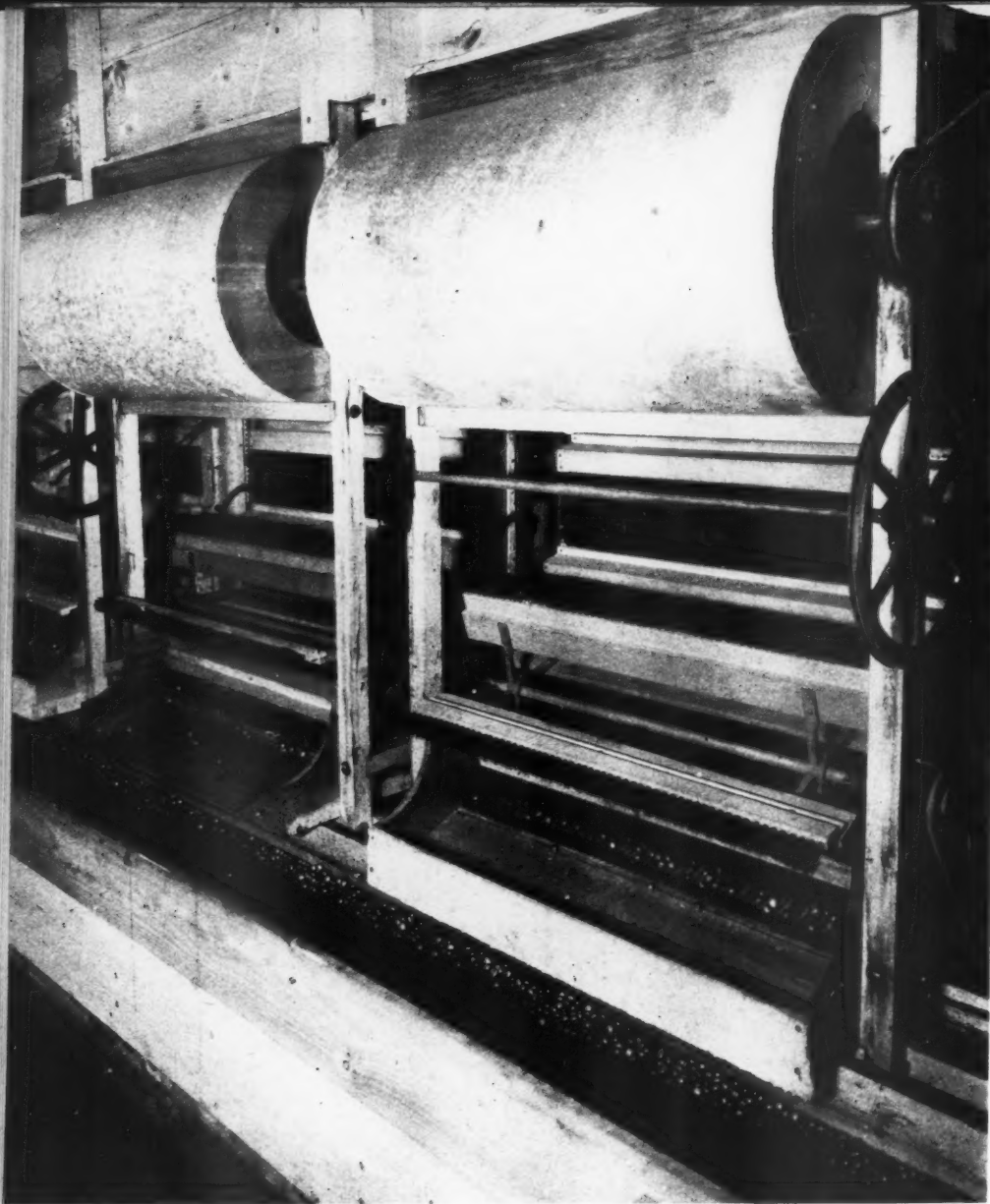
It was evidently with some of these situations in mind that F. P. Vergon of Delaware, Ohio, and Grant Hitchings of Syracuse, N.Y., simultaneously worked out what they termed the "mulch system" of orcharding. This was about 50 years ago. It was their intention to emulate Nature and grow fruit trees as they saw the forest trees flourishing under a forest litter.

This idea was roundly condemned in many quarters and ridicule heaped upon it as we are wont to do when

(Continued on page 18)

Above—A young, well-mulched pear tree.
Below—Type of hill orchard in which mulch system should be used to prevent erosion.





Cranberries are cleaned and carefully graded, as shown at left, before the last test of "bouncing," described below.

BERRIES

CRANBERRY STORAGE

Before a cranberry is shipped it must prove its vitality and fitness for market by bounding over a barrier. This is the way the berries are graded. Decayed or otherwise deteriorated berries will not bounce when they are dropped a short distance. The problem that scientists of the U.S.D.A. are attempting further to solve is how to retain this quality bounce in the cranberry after it has been in storage from two to four months.

Harvest of the crop generally starts in late summer or early fall, depending on the variety and the locality in which the berries are grown. Best consumer demand, however, comes around Thanksgiving and Christmas and for this reason a large part of the crop must be stored. Heavy losses from decay while in storage are often experienced.

After testing a large number of samples, at temperature ranges from 30 to 70 degrees F, scientists have concluded that holding the berries at 36 degrees F reduced decay and

breakdown to a minimum. Berries held at this temperature also retained the most attractive color.

Most storage houses are now insulated and equipped with proper ventilation, but few have refrigeration. In recent years consumer demand for cranberries has gradually lengthened the marketing period, which now continues long after the holiday season. To take care of this demand, growers wanted to know about storage temperatures and conditions.

The test showed that when the temperature was held at 36 degrees, from 65 to 73 per cent of the berries were in good condition at the end of four months. Over 90 per cent were rotten when held at a temperature of 70 degrees. As a result the consumer may obtain "bouncing" berries all through the winter months.

STRAWBERRY RENEWAL

Strawberry bed renewal is often desired when plants pass their prime for economical production. Prof. A. H. Teske, Virginia extension horticulturist, suggests this method: "Strawberry beds may be renewed by plowing down the center of the matted row with a turning plow, plowing un-

der as many as possible of the old plants. The plowed section may then be worked up and runner plants from the remaining part of the bed allowed to root in the cultivated section." Efficient bed renewal is done as soon after fruit harvest as possible, allowing for good establishment of runner plants before growth ceases in the fall.

WILD RED RASPBERRIES

It is well known that berry diseases occur where wild brambles are allowed to grow. Most troublesome of these rampant brambles is the wild red raspberry. It has the ability to retain mosaic diseases which are later transmitted by aphids to healthy, cultivated plants, and the cultivated black raspberry seems to be most affected.

Eradication of wild brambles has been recommended for some time, but only recently have experiment station workers suggested methods for speedy removal of these injurious plants. During the past four years Prof. L. M. Cooley, plant pathologist of the New York Experiment Station, has studied methods of eradicating wild brambles.

In his experiments the common methods of eradicating brambles, including mowing, burning, clean cultivation and grazing by livestock, were tested extensively. All of them proved effective when properly used. In situations where it can be employed, clean cultivation will give best results.

Where it was found impractical to use any of these eradication methods, Prof. Cooley obtained satisfactory results by employing chemical eradicants. The best results with this type of control were secured with ammonium sulphocyanate, sodium chlorate, and proprietary mixtures containing chlorates and sodium arsenite.

These chemicals should be employed only after consulting state experiment stations as to the time and manner of application as well as to the caution to be observed when using them. The proprietary compounds available on the market may be used according to recommendations of manufacturers.

Of the several types of wild brambles treated in the New York experiment, wild blackberry proved the most resistant to chemical eradication. Wild red and black raspberries and wild dewberries were killed easily except where growth was unusually vigorous.

BERRY PLANTING CARE

The small-fruit producer's work does not end with crop harvest. If quality fruit is his goal, there is much he must do in the small-fruit planting after the berries have been picked. These operations are of importance to

(Continued on page 17)

COURTEOUS treatment of patrons, a supply of quality fruit, and an attractive market is my policy for successful roadside selling.

Before 1931, our retail sales were made from a small building that served as a roadside market. Fruit from 125 acres of bearing orchard and other agricultural products from our 500-acre farm met with ready sales from this market.

Associated with me on the farms and orchard, which includes an additional 125 acres not yet in bearing, are my sons, Cornell, Kirk and Vernon. Each is an officer of our orchard company and has a specific job in operating the farm enterprise. We were traveling on the West Coast in 1931 when, in Los Angeles, interest was centered on the large outdoor produce markets.

Soon after returning to the farm we constructed an open-front roadside market. Included in this building is space for grader, washer, packing table, the farm office and a large salesroom.

First consideration for the new building was to make it and the surroundings as attractive as possible and yet retain practical features of construction. To close the open front at night, we installed folding doors which have proved very satisfactory.

Many of our customers drive to the market from St. Louis, which is about 15 miles from our location. We made wide approaches from the highway to the market front and provided ample parking space.

The main portion of our salesroom is devoted to fruit and fruit products which are arranged in neat displays. Proper display lends eye-appeal to fruit and the first barrier in the path of a successful sale is broken. An orderly arrangement of products encourages patrons to make personal selections, giving them a feeling of satisfaction and at the same time aiding the salesman.

Clerks on the Eckert Orchard Company roadside market are always courteous to customers and we insist that they present a neat, clean appearance. In my opinion, it's poor salesmanship to have fruit handled by salesmen with dirty hands. We also keep the floor and walls of the salesroom clean.

I have found that one requisite of roadside market fruit containers is that they do not damage clothing or auto upholstery. We find one of the best containers for fruit sold to city dwellers is the mesh bag. Our top-quality apples are packed in mesh bags and we have found that this practice increases our high-quality fruit sales 200 per cent.

Advertising is not only important but absolutely necessary to help build a real roadside business. Each week we run an advertisement in a large St. Louis newspaper. After question-

ing customers we found that a great many of them were first attracted to us by our advertising. Having drawn the buyers by advertising, we make sure they are able to locate our market by having large, easy-to-read signs located at busy cross-roads in the surrounding highway system. On the front of the roadside market building is a large neon sign, so they can't miss us.

While advertising is a first aid to marketing, I also believe its appeal must be backed up by quality of product. We have tried to build up our repeat sales by selling only the best quality fruit, available from our orchards, and when our customers are satisfied they tell others.

Steady, time-after-time visits are the ones that count for the
(Turn to page 17)



Above—Salesman delivering bag of high-grade apples to patron at Eckert roadside market
Below—Alvin O. Eckert filling a mesh bag with quality fruit from his extensive planting

ROADSIDE SELLING

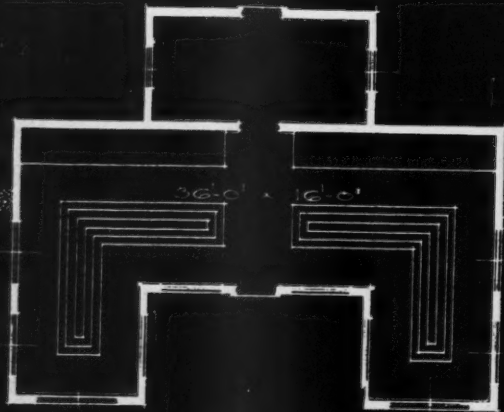
By Alvin O. Eckert
As told to W. H. Zipf

The development of roadside markets for fruit growers has been rapidly increasing during the past few years. In this article, Alvin O. Eckert, whose modern roadside market is located near Belleville, Ill., tells our Field Editor of the operations on his farm enterprise and the sale of his farm products through the roadside market. Mr. Eckert is active in both the Illinois State Horticultural Society and the Southern Illinois Horticultural Society.—EDITOR



If

YOU ARE PLANNING A ROADSIDE STAND HERE ARE 4 SUGGESTIONS



2

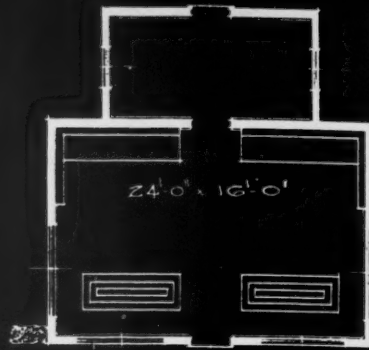


1—Simplicity of construction with efficiency in arrangement feature this roadside market. Large windows on either side of the front entrance and along the sides of the building allow full vision of elevated display racks. These windows also permit an open market during the summer season and a closed building for cold weather. A small rear room is provided to prepare fruit for display.

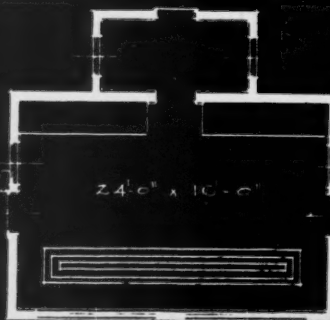
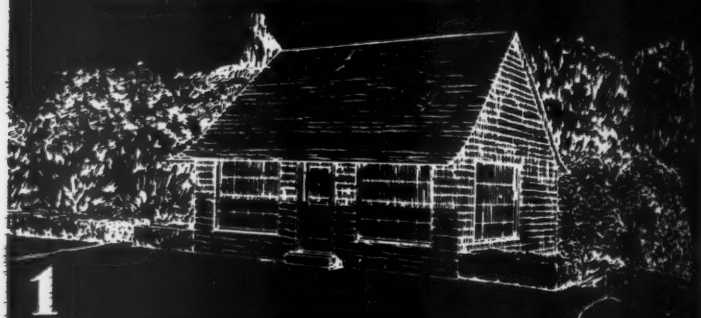
2—This larger structure is distinguished by full-windowed wings with entrance at front-center of stand. Large "L" display racks with additional wall shelving provide ample space for fruit and fruit products display. The rear room is well-lighted for fruit preparation work. A portion of this room might be used as a market office. Wide approaches provide abundant parking space.

3—Beautified by careful landscaping, this stand, like No. 1, is ideal for the smaller type of roadside market business. Entrance is on the right side of the building. The elevated display rack extends across the interior room paralleling the large front windows. Display bins along the rear wall have natural lighting from windows at either end of the building.

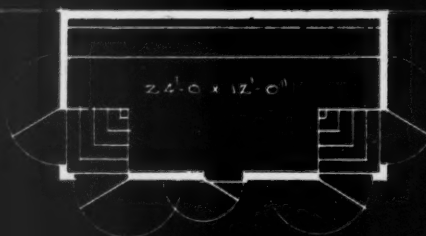
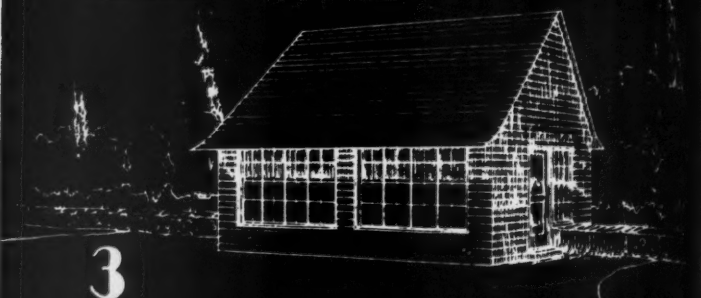
4—A popular type for seasonal sales is this small roadside stand. Fruit is displayed on steps at each front corner. Display space may be closed by large doors. The interior room has a display rack running along the rear wall. Illustrated stands are of wood clapboard construction. All plans on this page are shown through courtesy of University of Vermont Agricultural Extension Service co-operating with the U. S. D. A.



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JULY, 193

STATE NEWS

CALIFORNIA—Rigid enforcement of standardization laws in Arizona and California this season resulted in growers affiliated with the California Fruit Growers Exchange receiving \$1,500,000 more for their short but high-quality Navel orange crop than they received in recent years for normal size crops.

With the new citrus x-ray machine much good fruit is salvaged that formerly would have gone into by-products and poor fruit that would have slipped by is detected and culled out.

VIRGINIA—Production of quality fruit will be more important than ever this year owing to indicated large crop of apples throughout the country, in the opinion of A. H. Teske, extension horticulturist, who urges that growers pay close attention to thinning.

F. A. Motz, U.S.D.A. foreign marketing specialist (headquarters London), on his recent visit to Virginia, also stressed importance of high-quality fruit production if Virginia growers expect to meet the keen competition offered on foreign markets, where consumers have a large variety of fruits throughout the year from which to select their needs.

Mr. Motz gave little encouragement to



apple producers for favorable 1937 export demands due to prospects for a large crop in foreign countries. In view of this export situation, Mr. Motz commented favorably on the four-state advertising program of Appalachian Apples, Inc.

MASSACHUSETTS—The fruit program which will occupy the first two days of State College Farm and Home Week July 27-30 is unusually attractive. Machinery demonstrations will feature the opening of each day's fruit program.

Thin-wood pruning and graduated space thinning of tree fruits will be discussed by V. R. Gardner, Michigan State College. Strawberry, raspberry, and blueberry growing, orchard irrigation problems, and many other topics will be handled by State College and other authorities, while Jay Gelder, manager of the famous Chazy Orchards in New York, will give growers some excellent ideas about growing and selling apples. Complete programs are available from Massachusetts State College Mailing Room, Amherst.

WISCONSIN—By being able to spray everywhere and at any time, the Kickapoo Development Corporation of Gays Mills claim they have materially increased production on their 350-acre apple orchard. The stationary spray system which has replaced their portable sprayer battery permits orchard coverage in about two and one-half days.

Pipe lines from their six stationary sprayers consist of a main line with one and one-half inch pipe which gradually reduces to one and one-quarter inches, then to one inch. Lateral lines are of three-quarter inch pipe placed every eighth row. Tree rows are 24 feet apart both ways. Globe valve outlets are also eight rows apart.

Lateral pipe line outlets have three-quarter inch valves, while the main line shut-off valves are from one and one-half inches down to one inch. The 125-foot lengths of high-pressure hose permit spraying an area of 56 trees from a hose connection. The Pecan spray gun has been found most satisfactory. Spraying crew consists of 32 men as sprayers, one man to operate each stationary

plant, and one supervisor of sprayers for each stationary sprayer group. Theodore Bakke manages the extensive plantings.—H. J. RAHMLOW, Sec'y, Madison.

WASHINGTON—An insufficient number of pollinizers, elimination of pollinizing varieties in mature orchards to avoid crowding, and low temperatures at night retarding bee flight, have been factors in causing many commercial apple growers to resort to hand pollination. Cost of operation varies with the efficiency and experience of those doing the work but approximates 50 cents a tree.

A series of pollination schools were conducted this spring in which methods and mechanics of hand pollination were discussed.—JOHN C. SNYDER, Sec'y, Pullman.

GEORGIA—Growers are enthusiastic about two 30,000-bushel cold storages for apples constructed the past year. The storage at Ellijay (Gilmore County) was built under WPA, with local growers sponsoring the quota. The second plant near Clarksville (Habersham County) is owned by the growers' organization, the Consolidated Apple Growers Exchange.

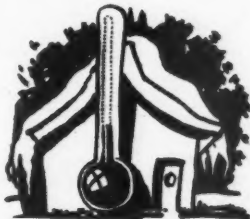
A good percentage of the exchange apples go onto the South Carolina market. Previous to construction of the cold storage, the exchange was compelled to store their apples in Atlanta 100 miles away and truck them back over the same 100 miles when supplies were needed in the South Carolina market.

Lower grades of apples will be stored in bulk in both plants and fed to the market gradually in order to avoid upsetting market prices, as in the past. During off seasons cabbage, eggs, etc., will be stored in these plants.

Successful operation of these storages is certain to result in great interest along this line in the future.—L. E. FARMER, Athens.

OKLAHOMA—Color development during the ripening process of Concord grapes has been found by investigators at Oklahoma A. and M. College to be related to the number of leaves per cane.

The project is being carried on in an



TENNESSEE—Fruit growers are generally well pleased with their crops and crop prospects. Strawberry growers in Humboldt and Portland sections averaged above \$3 per 24-quart crate and other sections admit a profitable season.

Large peach areas around Harriman, Kingston, Dayton, Sale Creek, and Cleveland, have a crop in sight but little below average. Growing conditions throughout the State have been exceptionally good.

Early apples promise an above-average, fine-quality crop. Blight has been severe.

Splendid example of the value of using a mild Bordeaux at blooming time to prevent

effort to aid commercial Oklahoma vineyardists to secure a more evenly ripened crop of Concords.

In studying the relationship of leaf area to color development, the tips of the shoots were removed and it was found that the number of leaves greatly affected the uneven color development of the fruit. Shoots having five leaves produced fruit with very little color. Shoots with 10 leaves produced fruit with an increased coloring. Those which were not tipped produced fruit of still better color.—F. B. CROSS, Sec'y, Stillwater.

NEW JERSEY—It will be some years before many trees of the new peach varieties developed by New Jersey Agricultural Experiment Station will be available in other states.

Recognizing in this a real opportunity for New Jersey growers to capitalize on the station's work, New Jersey State Horticultural Society has developed a plan whereby these new peach varieties can be marketed under a special grade, brand, and label.

It is hoped through this special marketing plan that the buying trade will recognize the superior quality and pack and thereby create a growing demand for these peaches.



PENNSYLVANIA—Annual summer meeting of State Horticultural Association of Pennsylvania at 7:30 P.M., July 26, will be part of a two-day orchard program, July 26-27, sponsored by Department of Horticulture at State College. Annual association tour, July 28-29, will include Franklin and Adams county orchards.

Two-day orchard program includes a report on soil losses by water and various cultural practices, the data for this report being obtained through the medium of the recently constructed catch basins in the college orchards. Since the information secured will influence future cultural practices, station workers are prepared to outline cultural operations for all tree fruits and grapes.

Cold storage construction and operation will be discussed by Profs. F. G. Heckler and F. N. Fagan of State College.

Out-of-State speakers: Prof. C. L. Burkholder, Indiana Agricultural Experiment Station; S. R. Gray, American Potash Institute, Inc.; and Carroll R. Miller, secretary, Appalachian Apples, Inc.

Manufacturers of orchard equipment and supplies are invited to stage exhibits.—J. U. RUEF, Sec'y, State College.

TENNESSEE—Fruit growers are generally well pleased with their crops and crop prospects. Strawberry growers in Humboldt and Portland sections averaged above \$3 per 24-quart crate and other sections admit a profitable season.

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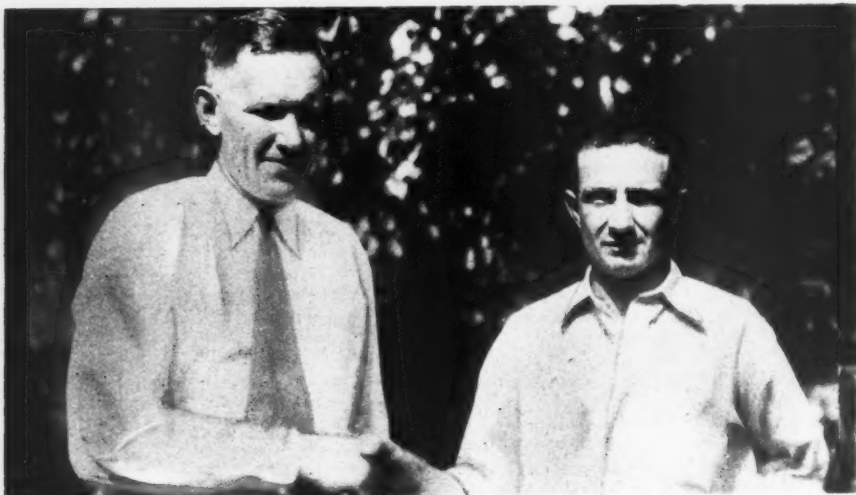
Early apples promise an above-average, fine-quality crop. Blight has been severe.

Splendid example of the value of using a mild Bordeaux at blooming time to prevent

Camera!



Governor George D. Aiken of Vermont (well-known fruit grower and nurseryman) signs a bill sponsored by Vermont Horticultural Society appropriating \$5000 a year to the Vermont Experiment Station and Agricultural College for horticultural research. Others in the picture are, left to right, Representative William H. Darrow of Putney; John M. Thomas of Montpelier, president of the horticultural society; and Senator William Noonan of Pantton.



Dr. J. R. Magness, U.S.D.A. horticulturist, meets J. V. Enzie, associate horticulturist of the New Mexico Agricultural Experiment Station, State College.



Ohio fruit growers, D. R. McConnell, Salem, left, and R. F. Mohler, Kent, caught, during a brisk conversation, by AMERICAN FRUIT GROWER cameraman.

blossom infection of fire blight may be seen in Prof. M. W. Robinson's orchard at Bolivar. While trees which received no bloom spray had almost 50 per cent of their bloom infected, the greater part of the orchard, which had received a 2-6-100 Bordeaux spray when three-fourths of the blossoms were open, showed but 15 to 20 per cent infection, and a small block of Delicious which received two applications, one when one-third and another when two-thirds to three-quarters of the blossoms were open, was almost entirely free of blossom blight injury.—A. N. PRATT, State Horticulturist, Nashville.

INDIANA—Total apple production is expected to be approximately 2,000,000 bushels. Varieties generally overloaded: Golden Delicious, Rome, Grimes, and Ben Davis. Jonathan appears to be a good crop while Delicious, Stayman, and Winesap appear to be about 60 to 75 per cent of a full crop.

Monroe McCown, extension horticulturist, estimates at least 90 per cent of the commercial acreage in the State shows commercial control of apple scab despite favorable weather for disease reproduction.

Potential peach production was reduced an estimated 70 to 75 per cent by death and injury to trees resulting from low temperatures in the winter of 1935-36. Probable 1937 production: 200,000 bushels.

Quality of strawberry crop is good but estimated production of around 40 per cent of a full crop is largely result of poor plant production under drought conditions last year.

Indiana Horticultural Society summer meeting will be held in Knox County early in August.—EVERETT WRIGHT, Sec'y, Lafayette.

MINNESOTA—Considerable winter injury occurred to strawberries and raspberries this year, particularly in the southern part of the State. Much of the injury to strawberries apparently occurred during late winter, probably in March, as plants taken up and stored indoors came through in good condition while plants in the same fields show much injury.

Growing conditions have been very favorable with rainfall above normal for the first time in many months.

Minnesota Fruit Growers Association in cooperation with the State Horticultural Society is sponsoring awards for winners in each county where a fruit growing project has been started by 4-H Club members.

This is the first year fruit growing has been included in the 4-H Club program. Additional awards are being planned by others interested in this work, including a trip for the State champion to the national 4-H Club Congress in Chicago.—J. D. WINTER, Sec'y, St. Paul.

MAINE—Despite the rocky, forbidding terrain, Ernest Saunders of Greene, with the capable assistance of his foreman, Ralph Campbell, has developed a splendid apple orchard. High quality of fruit produced is attested by membership in the 90 Per Cent Clean Apple Club. Recently dusting has been supplemented by spraying in sections of the Saunders orchard inaccessible to the duster early in the season. Supplementary pest control program consists of scraping rough bark from the trunks and larger branches.

The Saunders orchard served as the setting for the 1937 apple blossom festival.—J. H. WARING, Orono.

TEXAS—Definite knowledge and data on cultural problems, orchard management, insect control, and marketing will be available at 17th annual convention of Texas Pecan Growers Association, Greenville, July 13-14.—W. S. PRICE, Sec'y, Gustine.

MICHIGAN—Growers, exchange managers, and persons interested in the fruit industry, representing sale of approximately a third of the State's apple production, went on record recently as favoring adoption of Federal grades for packing Michigan apples.



Left—Ochs Fruit Farm 16,000-bushel storage, Lancaster, Ohio. Below—W. C. Reed and Son 43,000-bushel cold storage, Vincennes, Ind.

MODERN COLD STORAGE ON THE FRUIT FARM

By JONAS HOWARD

PART II

Brandt finds there are differences of opinion to some extent regarding storage temperatures. Recently in the case of apples he says the claim has been made that a storage temperature of 34 degrees will produce a better tasting apple than those held at lower temperatures. He believes, however, it is the majority opinion that for long storage of fruit the best results are obtained when the space is carried at an average temperature of 30 to 32 degrees and a relative humidity of 85 to 88 per cent. Guinness holds that it is desirable to maintain a relative humidity of from 85 to 90 per cent. Another nationally recognized refrigerating authority points out that there is also a difference of opinion on the percentage of humidity to be maintained. He believes this difference may lie in the fact that the fruit itself varies and may vary from year

to year. He points out that some years fruit is grown under normal conditions and with ample rainfall while in other years fruit is grown under drought conditions. This lack of sufficient moisture, he holds, will change the cell structure of the apple and necessitate different temperature and humidity conditions in storage.

Consideration must also be given to the fact that the length of time apples can be held successfully in cold storage will vary with the variety, with the region where grown, as well as with their condition when harvested. The following data, compiled by the U.S.D.A., show about how much time different varieties, as grown in regions to which they are best adapted, require to reach full eating-soft condition when picked at proper maturity and stored immediately at 32 degrees:

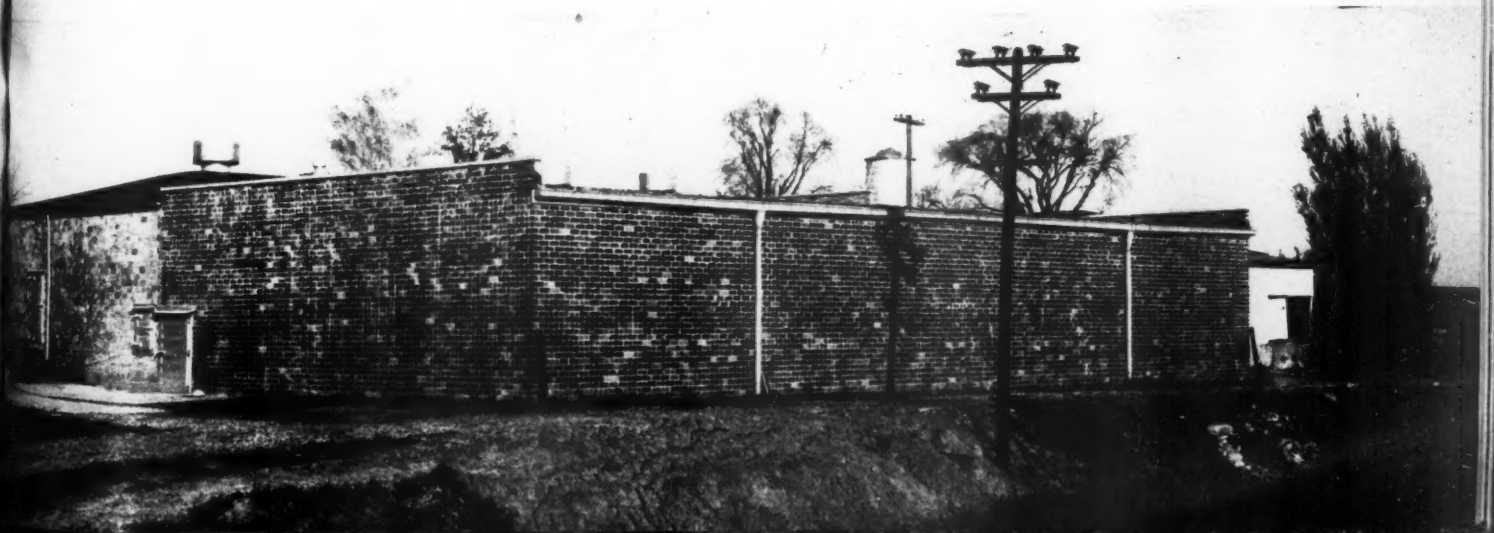
Variety	Months
McIntosh	2 to 4
Grimes Golden.....	2 to 4
Jonathan	3 to 4
Tompkins King.....	4 to 5
Northern Spy.....	4 to 6
Esopus Spitzenburg.....	4 to 6
Ben Davis.....	5 to 6
King David.....	5 to 6
Delicious	5 to 6
Rome Beauty.....	5 to 6
Baldwin	5 to 7
Rhode Island Greening.....	6 to 7
Stayman Winesap.....	6 to 7
Arkansas	6 to 7
York Imperial.....	6 to 7
Yellow Newtown.....	6 to 8
Winesap	7 to 8

Although the installation of refrigerated storage on the fruit farm calls for special consideration in each individual case, the fact remains that in a great many instances storage is the means, and potentially a highly profitable one, whereby the grower can stabilize the marketing of his product.

One national refrigeration authority, H. G. Brandt, condemned the construction of cold storages where walls are placed against hills or partly underground, since ground temperatures do not change appreciably from season to season. While the earth might be valuable in the warm fall months, it is actually detrimental during the winter season because of heat retention, according to Brandt.

Concluding the previous installment, C. I. Guinness, head of the Department of Agricultural Engineering, Massachusetts State College, suggested that if apples are to be held for the latest possible market, it is advisable to design the plant for 32-degree operation. He also pointed out that equipment which will cool the fruit to 45 degrees during loading will normally reduce the temperature to 32 degrees in a week after the loading has been completed.

—EDITOR.



APS

A PAGE CONDUCTED IN THE
INTERESTS OF THE AMERICAN
POMOLOGICAL SOCIETY

ANNOUNCING 1937 CONVENTION

THE Board of Managers of the A. P. S. announces the annual convention of the society at Springfield, Mo., December 8, 9 and 10. The program and exhibition will be housed in the Shrine Mosque, a building particularly well adapted for the purpose, located convenient to the principal hotels. Headquarters for the society will be the Hotel Kentwood Arms.

Co-operating Organizations

The Missouri State Horticultural Society is the host organization, but other co-operating groups include the horticultural societies of Arkansas, Oklahoma, Kansas, and Iowa, and the Chamber of Commerce of the city of Springfield. Local arrangements are in charge of W. R. Martin, Columbia, Mo., secretary of the Missouri State Horticultural Society, and D. P. Dell, Springfield, Mo., representing the Chamber of Commerce.

The program will feature the health and food values of fruits, with emphasis on apples, the papers on the subject to be presented for their permanent value as scientific contributions useful to the industry in its educational campaign to increase the use of fruits. Because of the local regional interest in strawberries, grapes, peaches, small fruits and nuts, each of these will be given a conspicuous place on the program.

The exhibition will be more than usually interesting in its variety features. The Mountain Grove Fruit Experiment Station will display many pure *vinifera* and hybrid *vinifera* grapes, about 100 varieties in all, including *Labrusca* and other American species and hybrid varieties. The majority of the new varieties of apples and nuts will also be brought together.

Broadcasting of Program

Arrangements have been made to broadcast a number of the talks during the period of the meetings from KWTO and KGBX, both of Springfield. Records are to be made of these and others which cannot be given at the time because of fixed features of the radio programs, in order that the talks may be sent to other stations and the program given the widest possible usefulness. This will be the first A. P. S. program featuring so much use of the radio.

Missouri Group to Advertise Apples

Missouri River Fruit Growers have organized to promote apple consumption. This organization includes the apple growers of nine counties in Kansas, Missouri, and Nebraska, and represents some 600 commercial growers. Two meetings have been held in the Chamber of Commerce building at St. Joseph, Mo., the first on May 28 and the second June 11.

In general the plan proposed is to collect one cent per bushel for promotional purposes, spending nine-tenths of a cent on local promotion and supporting the National Apple Institute on the basis of one-tenth of a cent for its research and educational program. The individual grower contract plan is under consideration, collection to be adapted to local circumstances.

The meeting of June 11 was addressed by B. S. Pickett who outlined the program of the National Apple Institute and described the promotional work of other regional institutes.

N. A. I. ACTIVITY

Most definite action for National Apple Institute during past month has been sign-up work among sectional institutes. Many sectional groups have conducted campaigns on basis of one cent per bushel for marketable apples, with one-tenth of collected funds to be contributed for work of N. A. I. All growers are urged to give support to this necessary promotion.

At left is Dr. J. H. Gourley, new president of N. A. I., and the apple-admirer to the right is W. B. Baughman, recently elected treasurer. Re-elected officers are John H. Lyman, vice-president, and Dr. H. E. Barnard, secretary.



Promotion Hints

Home economics research workers in state experiment stations and teachers in colleges, extension work and high schools are ideally situated to actively promote the greater use of apples. Their cooperation is usually available for apple advertising campaigns. They are able to supply technical material and culinary directions and to distribute apple promotion material.

When housewives serve more fried apples with meat, it will be a boon to the meat packers. If the new generation of wives learns how to make good apple pies the apple pie will remain America's most popular dish.

If every American girl or boy had an apple in his pocket when he went to school each morning, growers would sell 200,000 boxes or 250 carloads a day to take care of them.

An apple eaten at night will cleanse the teeth mechanically and chemically, and, if followed by vigorous brushing, will protect them from bacteria during the night.

The apple skin which is usually so blithely pared away, contains many of the health food elements we hear so much about.

The apple is a combination of refreshing acids, substantial bulk, and stimulating juices.

Annual Report

The Proceedings of the annual convention of the American Pomological Society was mailed to members of the A.P.S. about the first of June. Circumstances beyond our control prevented an earlier appearance of the 290-page report. We regret the delay of several months in getting the proceedings to our membership, but trust that the report will be of extreme interest to all those who have received their copies. We have endeavored each year to get the proceedings printed and into the hands of A.P.S. members much sooner, but under the conditions which need to be complied with, delays have been the rule.

A. L. Lantz
SECRETARY





H. O. K. MEISTER

NAMED GENERAL MANAGER HYATT BEARINGS DIVI- SION, GENERAL MOTORS

WILLIAM S. KNUDSEN, president of General Motors Corporation, announced the appointment on May 7 of H. O. K. Meister as general manager of the Hyatt Bearings Division, General Motors Corporation, Harrison, N.J. Mr. Meister succeeds the late Hyatt general manager, H. J. Forsythe.

Mr. Meister has been employed in various capacities in the Hyatt Division since 1914. In that year he joined the Hyatt Roller Bearing Company, the predecessor of the Hyatt Bearings Division, as assistant advertising manager in Harrison. Later he was transferred to Chicago in the sales department of the Hyatt Tractor and Implement Bearings Division and in 1920 became sales manager of that unit.

In 1925 Mr. Meister returned to Harrison as general sales manager of the entire Hyatt Bearings Division and in 1929 was named assistant general manager, in which capacity he served until his appointment as general manager.

Theo "Tate" Portsmann, veteran Scott County, Iowa, fruit grower, boasts a variety of interests on his orchard. Portsmann believes in diversification for, in addition to apple, pear, peach, cherry and other fruit trees, he grows roses, peonies, cactus plants, oriental poppies, and English and Japanese walnut trees. Mr. Portsmann, who is 75 years of age, takes an active interest in orchard work, assisted by his son Elmer.

Although dates are usually considered an imported fruit, approximately 3,000 tons are raised annually in California.

JULY, 1937

BUYS AND SELLS BY TELEPHONE

• "EVERY few days I telephone about prices," says an Oklahoma farmer. "Very often I sell for more over the telephone than I can get at the home market—and I also buy by telephone. We have had a telephone in our home for 25 years—don't see how we could do without it."

It is a great help to be able to talk to some one miles away as easily as talking across the room. A help when you want to ask the country agent's advice or transact business in the busy season. A help when the miles separate friends and relatives. A help beyond measure when you need doctor, veterinarian, or the assistance of a neighbor.

It's easier to get things done with a telephone.



BELL TELEPHONE SYSTEM

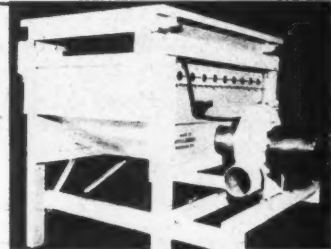
CHARACTER

Here, one instinctively feels those perfections of hospitality and service that have made The Bellevue famous . . . Rates Begin at \$3.50

BELLEVUE STRATFORD PHILADELPHIA

One of the few famous hotels in America
CLAUDE H. BENNETT, Gen. Mgr.

AMERICAN FRUIT GROWER



PEACH AND APPLE BRUSHER

Removes fuzz from peaches, dirt from any size fruit or vegetable, polishes apples. Ball bearing machines, all brushes revolve. Small power consumption, long life, gasoline or electric driven, low cost, 200 to 500 bushels per hr. Hundreds of these machines now in use. Write for bulletin.

FRED A. DURAND Woodbury, Georgia

PAGE 15

*A Glorious
Vacation
at the
Physical
Culture Hotel
Dansville, New York*

**PLUS THE
Natural**
*Health Training will
be remembered as long
as you live.*

Comforts
*of a modern, up-to-
date Hotel in an atmos-
phere of country peace,
rest and quiet.*

Information
*and Book of Views
FREE. No obligation.
Valuable Health Book-
let if you mention this
paper.*

Write Today
Founded by Bernard MacLadden

PROTECT TREE WOUNDS WITH

SAVATREE

The Pruning Paint that lasts until wounds have healed. Growers, Distributors and others who may be interested are invited to write for free literature and prices.

SOUTHPORT PAINT CO., INC.

Division of Wesson Oil & Snowdrift Co., Inc., Savannah, Ga.

CYCLONE

FRUIT PICKER'S BAGS

For Apple, Peach and Pear Growers
BAG No. 1—Medium Weight
BAG No. 10—Heavy Weight

High Quality, Convenient, Comfortable, Guaranteed. Pickers like 'em. That's why they sell so well. Ask for our offer.

THE CYCLONE SEEDER CO.
Central Bldg., Urbana, Ind., U.S.A.
Makers of the Well Known Cyclone
and Horn Seed Sowers

ON THE BOARDWALK

The Flanders

Season JUNE 20th to SEPTEMBER 20th

MODERN FIREPROOF

232 rooms with bath and ocean view. Open and inclosed sun decks. 3 open air circulating sea water pools. All outdoor sports.

American Plan - Low Rates

**J. Howard Slocum
Manager**



OCEAN CITY, N.J.

Baked Apples—\$3.50 Bushel!

By I. P. LEWIS

1936 saw me in the peculiar position of having 8000 bushels of baked apples which had been cooked in one of the most expensive ovens you ever heard tell of. It happened this way:

There was a scarcity of apple pickers in our community last fall and we were forced to obtain pickers from southern Ohio to harvest the crop on our 90-acre orchard near New Waterford, Ohio. The weather was bitter and the orchard muddy. Many times we were forced to hook tractors onto our trucks to get the fruit out of the orchard.

We stored tree-run fruit in field crates in our 9000-bushel storage, packing out according to demand. The storage was almost full. An order came through from Cleveland for a truckload of dropped apples. We had packed until the packing room was full of fruit, ready for the truck which failed to arrive. With no space left in the packing room, I stopped the men at the grader and packing tables, ordering them to haul apples from another building to the house cellar.

A small stove in a corner of the packing room kept apples from freezing while being packed. As we were leaving the room I saw one of the men put some broken basket lids into the stove.

A few minutes after we stopped grading apples, the gasoline truck drove into the yard. I unlocked our 250-gallon underground gasoline tank. While I was signing the delivery receipt for the gasoline, the driver suddenly yelled . . . "FIRE" . . . For a second I was shocked into inaction. Flames were coming out of the top of the west end of the packing room. I yelled for the men . . . I put through a call for the New Waterford fire department . . . A southwest wind whipped the flames into the barn and storage. The heat became so intense that the firemen were unable to get to the well near the burning building. Would that we had a pond or large water supply adjacent to our farm buildings!

The fire crackled as it ate the wood of the crates to the bottom of the tiers. We found later that every bit of our good fruit was utterly ruined, as the apples which were not burned had absorbed the bitter taste of the smoke. The only parts of some of the crates left unburned were the bottoms. The refrigerating pipes allowed ventilation which caused the heat to become so terrific that the apples in the cold storage room were actually cooked. With the exception of the wall to the

windward which escaped major gutting, the tile lining of the storage had to be entirely torn out.

To this day we count ourselves as most fortunate in that the safety valves in our cold storage pipes permitted the boiling ammonia to escape harmlessly. A lamp in the storage containing a small amount of high-test gasoline, blew up and was hurled over the storage wall, landing in the yard 20 feet from the building.

As a result of this fire, we lost around 8000 bushels of apples and more than 8500 crates. Our grader and refrigeration machinery were damaged beyond repair. The tool house and garage a few feet from the storage were destroyed by the blaze. In it we lost all of our small tools and a quantity of spray materials. It was only because our sprayers and other large units of equipment were stored in a machinery building to the windward of the storage that they were not burned also. Our dwellings were saved because they had slate roofs, and you can bet that my next storage, as well as other buildings which I build at the orchard, will have a fireproof quarried slate roof. Had we noticed the fire just as it started, a large chemical extinguisher would have done the trick and our buildings would have been saved.

Our storage had been converted from a large dairy barn and storage shed. The basement rooms in the storage were lined with tile and insulated. This might be a cheap method of building a storage but it is not so good as a fire hazard. There was hay in the upper part of the barn and storage space for empty baskets. There were about 10 inches of shavings which burned rapidly when fire got to them. Fireproof or fire-resistant insulation should certainly be used in the construction of all storages.

I think the fire started either from the stove or from a lighted cigarette or match used by one of the men when they stopped grading. Smoking about the packing shed and storage is always a fire hazard unless the building is constructed of concrete or some other fireproof material. We were fortunate in that the buildings were partially covered with fire insurance, but this did not amount to the replacement cost of the buildings. In the future we plan to increase our fire insurance coverage on fruit in storage as well as on the buildings. May we have the good fortune never to collect on this insurance.

BERRY PLANTING CARE

(Continued from page 8)

prevent disease getting into the patch and to prepare the plants for winter and the subsequent growing season.

In many sections the destructive disease known as anthracnose may be prevalent. The common name for this troublesome disease is "gray-bark." Bark on one-year berry canes assumes a grayish color, often peeling and splitting as the disease develops. Result is a decided decrease in fruit yield.

Spraying for anthracnose is advised immediately after the fruit is harvested and the old canes have been removed. A common spray recommendation is Bordeaux mixture used at the strength of 4-5-50 (four pounds of copper sulphate, five pounds of lime and 50 gallons of water). Research workers advise that this spray be applied once each week for three weeks. This spray recommendation is in addition to the regular applications discussed in the December, 1936, issue of AMERICAN FRUIT GROWER.

First consideration for the control of anthracnose in addition to the spray recommended above is the use of disease-free plants. Eradication of weeds and excess growth in the rows will also prevent spreading of the disease.

The post-harvest spray will also control leaf spot, another disease which is often prevalent and serious.

In the control of any disease, sanitation plays a major role. Most important sanitation operation is the removal of old canes after fruiting. They should be cut as close to the soil level as possible.

Leaf spot apparently knows no favorites, as strawberries, too, are often seriously infected. The general practice is to mow the leaves off of the plants after picking, followed by removal and burning of the severed plant parts. Should the attack of this disease be particularly severe, the above operations are followed by an application of Bordeaux mixture, 4-5-50. All cultural practices related to good plant growth should be maintained for strawberries as well as for other small fruits during the entire growing season.

Workers at the U.S.D.A. field station at Beltsville, Md., have carried on research indicating that cultural practices favoring large numbers of healthy leaves on plants in the fall will pay dividends. Their conclusion is based on the fact that the fruit buds of strawberries are formed in the fall and that there is a distinct relationship between the number of leaves per plant in the fall and the berries harvested in the spring. Thus, plants in good growth with numerous leaves have much greater volume of production than those showing poor growth in the fall.

JULY, 1937



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ROADSIDE SELLING

(Continued from page 9)

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PAGE 17

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MULCH SYSTEM OF ORCHARDING

(Continued from page 7)

we wish to make short work of someone's argument. But through the years this concept has grown, orchards of more than 40 years in continuous mulch are still bearing well, and the several years of severe drought have demonstrated a certain advantage from this system in several of the eastern and mid-west states.

A system of culture should aim (1) to provide for a favorable moisture supply; (2) to supply sufficient nutrients for maximum production; (3) to attempt to add at least sufficient organic matter to offset any loss due to decomposition, erosion,

cent moisture; cover crops 12.7 per cent; bluegrass sod 11.5 per cent; and alfalfa sod 9.8 per cent. The penetrability of rainfall in either a sod or mulch is much greater during dry times than in a cultivated soil, as shown by many recent experiments. Likewise the evaporation from the soil is checked, both of which account in part for the greater moisture content of the soil.

The naturally occurring nitrates of the soil vary tremendously, even from day to day, certainly when one season is compared with another. Usually they are low under sods of bluegrass, timothy, and certain oth-



The row of young pear trees on the left in the above photograph are growing in nitrogen-fertilized sod. Trees in the row on the right have been mulched, with resulting better growth.

or other factors; (4) to prevent erosion; and (5) to avoid serious compacting of the soil (that is, to maintain a loose or friable condition).

The chief systems of soil management in use at present are sod, tillage usually with cover crops, mulch, and intercropping. Various modifications and combinations of these systems are also used.

Under ordinary weather conditions it doesn't make much difference what system of culture is used so far as the soil moisture is concerned. But in times of great stress when the soil moisture is being depleted and rainfall is scant, the mulch has had a greater supply than any system used in the Ohio experiments. In 1931, when the conditions had reached a critical point, we determined the moisture in different areas with the following results: mulch 9.45 per cent moisture (which is very low); cultivation with cover crops 6.37 per cent; clean cultivation 7.23 per cent; bluegrass sod 6.24 per cent.

In 1932 similar determinations were made in a pear experiment (by Howlett) which yielded the following observations: mulch 22.4 per

er grasses, and higher under cultivation. So they vary also under mulch. Shaw (Massachusetts) showed the nitrates under mulch to average 38 parts per million under mulch in 1925 and 10 parts in cultivation. The next year they ran 128 parts under mulch and 20 parts in cultivation. Under such conditions no additional advantage would be expected if nitrogenous fertilizers were added to the mulch. In Ohio, we found 22.40 p.p.m. of nitrate under mulch in 1935, 18.26 p.p.m. under cultivation, 11.02 in bluegrass sod, and 21.47 in alfalfa sod. These determinations were made in September.

Ordinarily we advise the regular use of nitrogen fertilizers in the mulch system but, as a matter of fact, under many conditions no additional nitrogen is needed in an old established mulch.

We usually think of a soil being "good" or "poor" largely depending on the organic matter content. Other factors, such as depth of soil, physical condition, drainage, etc., play important roles, also. However, there has been a long established concep-

tion among orchardists that one can build up a "bank account" of organic matter by plowing in cover crops. This material was supposed to remain more or less permanently and avoid need of further additions after the trees occupied the entire orchard area.

To learn something of the organic matter content of orchard soils in Ohio, Dr. Havis determined the content under old established mulches, old bluegrass, and where cover crops had been plowed down for a number of years. The findings are of interest and represent a challenge to advocates of intensive cultivation even where cover crops are regularly plowed or disked into the land.

	Per Cent of Organic Matter	
	Orchard planted in 1893	Orchard planted in 1915
	Per cent	Per cent
Mulch	4.25	4.75
Sod	3.6	4.0
Cultivation	1.8	2.0

How nearly these figures represent the situation in other orchard areas we do not know, but certainly under Ohio conditions orchards will retain more organic matter if the land is not disturbed.

Without attempting an exhaustive survey of experiments, it may be stated that the Indiana Agricultural Experiment Station reported that growth and yield in mulched orchards were as satisfactory under mulch as under cultivation, but they were both rather unsatisfactory in sod.

The Massachusetts Agricultural Experiment Station reported that "the data presented seem to show

that the mulched trees have grown and produced better than those under cultivation," but they raise the question of cost and availability of mulch material.

In Ohio the growth and yield have been about the same under the two systems. At first the cultivated trees were best, but later there was a tendency for the mulched ones to become superior. There was no particular difference in cost of operation of the two systems.

Ellenwood has compiled the following figures on the value of the fruit from these plots as follows:

	Value of Fruit Per Tree (Av. per tree)	
	1926-1935	1932-1935
Delicious and Stayman		
	Average	Average
Treatment	1926-1935	1932-1935
Cover Crop	\$14.87	\$13.44
Mulch	13.63	14.27

In the old mulched block (planted in 1893) the average annual yield of 15 leading varieties for a 26-year period (1910-1935) has been 15.5 bushels per tree. These trees were planted 33 feet apart which is 620 bushels per acre over a long period of time. The soil is favorable and likewise the site and the pruning has not been heavy, nevertheless it demonstrates beyond question that the mulch is a satisfactory system of orcharding for both hilly and level land.

But of all the evidence at hand, perhaps there is no greater benefit than that of conserving the soil and avoiding the depletion of organic matter. Both tillage and mulch are satisfactory where properly handled, but the mulch system is on the ascendency rather than the reverse.



This 21-year-old Delicious tree in the Ohio Agricultural Experiment Station orchards has been continually subjected to the sod-mulch system of orchard soil management. Healthy and vigorous growth indicates benefits to be derived from this method of soil care. The mulch system seems to be gaining in popularity over cultivation in many sections at the present time, especially where it is important to conserve valuable soil.

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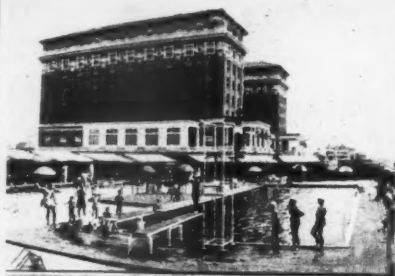
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DISEASES OF NUT TREES

AT THE annual meeting of the Northern Nut Growers' Association, Dr. D. S. Welch of Cornell University discussed various nut tree diseases. He pointed out that many of the diseases of nut trees have never been carefully studied, and that until more detailed information is available concerning the life history of the causal organisms, definite control measures cannot be devised.

Bacterial blight of the Persian (English) walnut is a common and destructive disease of walnuts in the West. It also is known to cause serious trouble in the East. This disease attacks the buds, leaves, shoots and fruits. It is most destructive to the nuts, causing black spots of varying sizes, followed by premature dropping. Late infection on the husks results in misshapen nuts, husks sticking to shells, or discolored shells. The bacteria overwinter in affected buds and in the spring they ooze out and are carried by splashing rain to the young growing parts.

Under Oregon conditions where most of the experimental work has been done on the control of this disease, Bordeaux mixture 2-2-50 has given best results. The first application is made just before the pistillate flowers come into full bloom. The second is applied immediately after the majority of the flowers have been pollinated, and if the weather is wet after this application a third spray is applied about 10 days later.

The Nectria canker of black walnuts, to which disease the Thomas variety is especially susceptible, is a fungous disease which causes open wounds with swollen callous ridges or folds around the margin. The new callous growth which forms around the canker is killed each spring by the fungus which persists in the wood or adjacent bark. These infections persist many years, and although they do not spread in a longitudinal direction, they eventually girdle the branch and may permit the entrance of destructive insects or wood destroying fungi.

Another type of Nectria canker frequently follows winter injury on twigs and branches. This canker is more serious on nut trees near the northern limit of their range where winter injury may occur more frequently. Control of these cankers consists of removing them as soon as possible, protection of all necessary wounds by grafting wax, and preventing mechanical injuries insofar as is possible. Where large cankers are removed the wounds should be smoothly trimmed with a sharp blade and painted at once with orange shellac. When dry paint all exposed wood surfaces with a wound dressing such as Bordeaux paint, asphalt roofing paint, water asphalt emulsion, or red barn paint.—G. L. SLATE, Sec'y, Northern Nut Growers' Assn., Geneva, N.Y.

Apple Spraying Dramatized

MOTION picture films on apple spraying methods for Wisconsin are being prepared by Wisconsin Horticultural Society. The films, partly in color, will show stages of bud and leaf development at which trees should be sprayed for disease and insect control. Stationary and portable sprayers will be pictured, also spray nozzles and their operation, spray ring operation, and fruit and leaf injury from various insects and diseases.

Karl Reynolds, the society's president, made an excellent film last fall showing picking, packing, and grading methods for Wisconsin apples. Because of the keen interest in this film on the part of fruit-grower associations to whom it was shown, the spraying film is being prepared by the society, in co-operation with the departments of entomology, pathology, and horticulture of the College of Agriculture.

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JULY, 1937

NEW

- INSECTICIDE DIFFUSOR
- ACETYLENE TORCH
- MECHANICAL SCARECROW

By HANDY ANDY

Pests seem to be the lot of fruit growers, so I'm always on the lookout for ways and means of controlling them. This month I'm introducing you to three new units of pest-controlling equipment. I'll be glad to receive any of your questions on these items and to have your ideas for my department. Just write me in care of **AMERICAN FRUIT GROWER**, 1370 Ontario Street, Cleveland, Ohio.

INSECTICIDE DIFFUSOR •

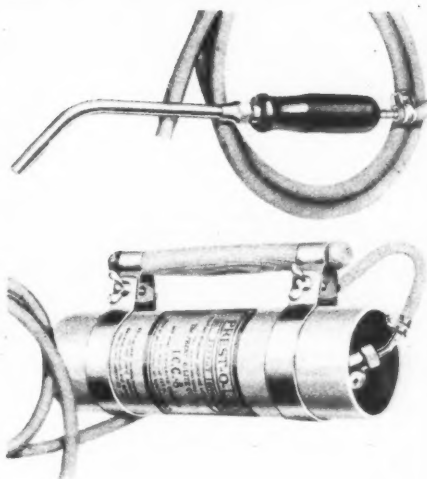
Cockroaches or water-bugs may become troublesome pests around the fruit packing house, storage sales-room, or roadside stand. In addition to their undesirable appearance, they often render soft-skinned fruit unfit for sale. Flies, ants, and crickets are also sources of a good bit of trouble.



There has just been perfected an insecticide diffusor that will force killing vapor into cracks and crevices where troublesome insects hide and reproduce. The vapor released by the diffusor shown here will cause no harm to animals or humans. In fact, it is stated that a dog placed in a room filled with this diffusor-produced vapor will be flealess in a short time.

ACETYLENE TORCH •

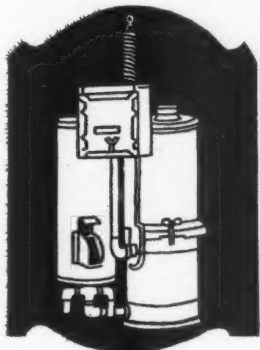
Those pesky tent caterpillars and webworms have often brought me a lot of grief. Their presence has always meant a good bit of messy fussing around with kerosene, old rags, and poles because I've always burned away webs to keep down the next year's population. Now there



has been announced an acetylene torch to be fastened on a pole so that the webs are easily destroyed without the danger involved when using kerosene-soaked rags. The acetylene tank is equipped with a handle and a hose connects tank and torch, as shown in illustrations. Besides cleaning up the worms, there are many other ways in which this handy gadget can be used around the workshop and orchard.

MECHANICAL SCARECROW •

"Drat those danged birds," says Mr. Fruit Grower every time he sees a flock of birds descending on well-laden trees. I've tried covering young cherry trees for protection against robins, but this means plenty of work. Just announced for fruit growers is an automatic acetylene exploder. This new unit was first used in the Northwest to keep deer out of orchards. Its explosion is about the same as that of a 12-gauge shotgun and after each explosion the unit swings on the rope by which it is suspended over the trees. This ex-



ploder is inexpensive to operate, the gas being generated by action of water on calcium carbide.

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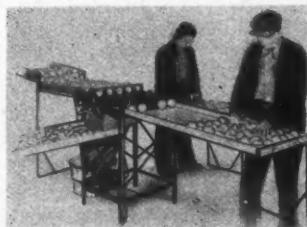
BEWARE of a truck that overheats! Power is being lost. The motor becomes sluggish. Extra strain is being put on the motor and you may run up a fat repair bill.

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PAGE 21

SUCCESSFUL ORCHARDS

● A "ROUND TABLE" PAGE FOR EVERY GROWER ●

BUCKWHEAT AIDS RASPBERRY SHADING

MANY comments have been received concerning the "Successful Orchards" item of Herbert J. Plagge which appeared in the January, 1937, issue. Below are some excerpts from a letter written by Charles D. French of New York, small-fruit enthusiast.

"I would like to submit a few lines which may help to answer Mr. Plagge's question regarding shading of raspberries. This is from my own experience.

"I have six rows of Latham raspberries containing about 400 plants. The patch is three years old and I tie the plants to wire trellises which are spaced seven feet apart.

"Between June 15 and 20, 1936, I planted buckwheat between the rows as an experiment. On the day following the planting, we had showers and the buckwheat started nicely. At the time of planting the buckwheat the fruit had begun to set so I was rather doubtful about my plan. The buckwheat grew rapidly, shaded the plants very well and I think held the moisture. At any rate, we picked nearly 500 quarts from this patch and sold them for \$90. The highest price was 35 cents per quart retail and 12 cents a pint wholesale, which I think was very good. Our first picking began July 8 and we finished picking on August 3.

"The drought which occurred during the 1936 season resulted in poor growth for our new canes and I expect that our 1937 crop will be far less than the average. We have 1400 plants this year and will certainly plant buckwheat between each row.

"I hope this reply to Mr. Plagge's question is not too late as I think the use of buckwheat or some other crop is certainly worth a trial."

The above comment by Mr. French is

This page is a place for growers to get together and exchange experiences and ideas. The beginner, as well as the veteran, will find here many practical suggestions for better and more profitable fruit growing. In return for the helps you receive from this page, be ready to pass on, for the benefit of others, any new idea, method or procedure you have developed or run across. Just jot it down as it occurs to you (a postcard will often do) and mail it to the "ROUND TABLE EDITOR," AMERICAN FRUIT GROWER. Don't worry about fancy writing. What the readers of this page want are practical pointers—that are to the point.

worthy of consideration by many growers who are having trouble with sun-scald on berries.

W. D. Hilbish starting engine which pumps water from spring-fed pond into storage tank, from which is filled truck-tank for delivery of water to sprayer, as described by Mr. Hilbish on this page.



TANK TRUCK PERMITS STEADY SPRAYING

NO time is lost during spray operations on the Lake Erie Orchard in northern Ohio operated by W. D. Hilbish. Says Mr. Hilbish regarding the supply of spray water for his rig while working in the orchard:

"We are fortunate in having a small pond created by springs on a high level at one end of the orchard. A centrifugal pump, powered by a gas engine, lifts water from this pond into a tower type spray-water storage tank. A two-ton truck on which is mounted a 500-gallon tank transports water from the storage tank to the sprayer in the orchard. Thus the water supply is taken to the sprayer, saving both time and energy. The truck-mounted tank has a three-inch spout at the bottom for quick transfer of water. Spray materials are also carried on the truck, to be mixed each time the spray rig tank is filled.

"We were stumped for awhile by not being able to get all the water out of the truck tank into the spray rig. We finally hit upon an idea to hinge the rear of the tank and place a regular automobile bumper-type hydraulic jack underneath the front end of the tank on the truck bed. With the jack we are able to raise the tank and force all the water in it to flow through the valve. This method of supplying water to the spray rig makes possible almost steady operation of the rig and timely application of sprays on our 200-acre apple orchard.

"So far we have had no trouble from lack of water in the pond, as springs are the source of water supply and lack of surface moisture and other water sources have little effect on the water level. A screen placed on the metal end of the hose to prevent trash from being sucked into the pump has worked very satisfactorily for several seasons."

ANOTHER TIP ON DEFYING JACK FROST

NEW ideas are always popping up about fruit farms operated by our readers. That is the reason your Round Table Editor is constantly asking you to send in these items so that others may have a chance to try them out. Fruit grower Walter R. Isakson of Indiana responded to our call for ideas with the following item.

"Last year I asked several garages and filling stations to save all their empty five-quart oil cans for me. At present I have several hundred of these cans.

"When a late frost came last spring, I was prepared for it. I had removed half of the top of each can and filled them with old used motor oil. I then hung a piece of soft rag in each one to act as a starter wick. When I was ready to light them I poured a small quantity of gasoline on the rags, and believe me those cans of oil really produced both heat and smoke. My one warning would be—don't set them too close to the trees."

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